

IN THE SPECIFICATION:

Please add the following paragraph before the paragraph beginning on page 1, after line 5:

--This is a divisional application of U.S. Serial No. 09/786,692, filed on May 14, 2001.--

Please amend the paragraph beginning on page 2, line 11 as follows:

A discharge gas, such as a mixture of neon and xenon, is normally enclosed into the discharge spaces 2200 at a pressure of around 500 Torr (6.65 x 10⁴Pa).

Please amend the paragraph beginning on page 2, line 14, as follows:

In practice, however, such conventional PDPs have not always been able to achieve satisfactory luminance. In order to improve luminance, it is considered necessary to enclose the discharge gas inside the discharge spaces 2200 at an internal pressure exceeding 500 Torr (6.65 x 10⁴Pa).

Please amend the paragraph beginning on page 2, line 19, as follows:

However, with the internal pressure in the discharge spaces 2200 is raised to 760 Ton (1.01 x 10⁵Pa) or 1000 Torr (1.33 x 10⁵Pa), for example, gaps are generated between the barrier ribs 2103 formed on the back glass plate 2101 and the front substrate 2000, while the front and back substrates 2000 and 2100 bulge outwards. This means that neighboring discharge spaces 2200 are no longer effectively divided by the barrier ribs 2103, causing the display performance of the PDP to deteriorate.

Please amend the paragraph beginning on page 3, line 1, as follows:

Even if the internal pressure is set at 760 Torr (1.01×10^5 Pa) or less, the barrier ribs 2103 are not connected to the front substrate 2100, so that external vibrations or vibrations caused by driving the PDP itself bring the barrier ribs 2103 and the front substrate 2000 repeatedly into contact, generating noise.

Please amend the paragraph beginning on page 4, line 26, as follows:

To fulfill the above first object, a display panel manufacturing method, comprising an application process for applying a bonding agent to a plurality of barrier ribs formed on at least one of a pair of substrates, and a connection process for arranging the pair of substrates together via the bonding agent that has been applied to the barrier ribs is provided. The application process includes a bonding agent layer forming step for forming a layer of a paste-like bonding agent having an even surface over a substrate having an even surface: and a connecting step for simultaneously bringing a top of each barrier rib down into contact with the bonding agent layer, while regulating a distance between the upper surface of the bonding agent layer and the barrier ribs.

A display panel manufacturing method may further include an application process for applying a bonding agent to a plurality of barrier ribs formed on at least one of a pair of substrates. and a connection process for arranging the pair of substrates in opposition and connecting the pair of substrates together via the bonding agent that has been applied to the barrier ribs. The application process includes a bonding agent layer forming step for forming a layer of a paste-like bonding agent having an even surface so as to embed a position regulating member that regulates positions of the barrier ribs within the layer, the position regulating member being arranged on a substrate having an even surface: and a connecting step for bringing

a top of each barrier rib down into contact with the position regulating member to apply the bonding agent simultaneously to the tops of all of the barrier ribs while regulating a distance between the upper surface of the bonding agent layer and the barrier ribs.

Furthermore, a display panel manufacturing method may include an application process for applying a bonding agent to a plurality of barrier ribs formed on at least one of a pair of substrates in opposition and connecting the pair of substrates together via the bonding agent that has been applied to the barrier ribs. The application process includes a bonding agent layer forming step for forming a layer of a paste-like' bonding agent having a curved surface so as to embed a position regulating member that regulates positions of the barrier ribs within the layer. the position regulating member being arranged on a substrate having a curved surface: and a connecting step for bringing a part of each barrier rib top down into contact with the position regulating member, and then to move the position regulating member along a length of the barrier ribs to apply the bonding agent to the tops of all of the barrier ribs while regulating a distance between the upper surface of the bonding agent layer and the barrier ribs a bonding agent holding process for having a bond holding member hold a paste-like bond to form a surface; and a bonding agent applying process for applying the bonding agent to almost an entire top surface of each barrier rib into contact with the bonding agent layer, while regulating a degree of contact between the bonding agent layer and the barrier ribs.

Please amend the paragraph beginning on page 5, line 15, as follows:

In this invention In this way, the invention aligns barrier rib tops and the bonding agent arranged on the barrier rib tops are aligned using surface tension created on the surface of the barrier ribs by bringing the barrier rib tops and the surface of a bonding paste layer into the

appropriate degree of contact. This method is used rather than a screen plate with an aperture pattern like that used in screen-printing. As a result, the bonding agent can be applied evenly along the narrow barrier rib tops using a simple technique, even if the barrier rib tops are not strictly linear, and form wavy lines.

Please delete the paragraph beginning on page 7, line 15.

Please delete the paragraph beginning on page 7, line 22.

Please delete the paragraph beginning on page 7, line 26.

Please delete the paragraph beginning on page 8, line 15.

Please delete the paragraph beginning on page 8, line 19.

Please delete the paragraph beginning on page 8, line 26.

Please delete the paragraph beginning on page 9, line 7.

Please delete the paragraph beginning on page 9, line 11.

Please delete the paragraph beginning on page 9, line 20.

Please insert the following paragraph before the paragraph beginning on page 9, line 23:

--Here, the relative positions of the barrier ribs and the bonding agent can be altered while keeping the barrier ribs in contact with the bonding agent layer. This enables the bonding agent to be applied more evenly to the barrier rib tops.--

Please delete the paragraph beginning on page 9, line 25.

Please amend the paragraph beginning on page 10, line 4, as follows:

The position regulating member means may be made from wire rods, which are either interwoven or lined up precisely. The position regulating member may also be composed of indentations and protrusions formed on the surface of the bonding agent holding member a flat substrate, or may be a plurality of half-cylinders, the barrier rib tops being brought into contact with the curved surface of the half-cylinders.

Please amend the paragraph beginning on page 11, line 16, as follows:

Also in order to achieve the above first object, a display panel manufacturing method, for connecting a pair of substrates arranged in opposition, via a bonding agent, which has been applied to a plurality of barrier ribs formed in a specific pattern on at least one of the substrates is provided. The display panel manufacturing method includes a barrier rib pattern forming process including a first step for laminating the barrier rib forming material and the bonding' agent by forming layers of certain thicknesses: a second step for simultaneously pressing down the laminated barrier rib forming material and bonding agent using a same pattern-forming member to form the specific pattern: and a third step for transferring a molded pattern formed in the barrier rib forming material and bonding agent to the substrate on which the barrier ribs are to be formed for forming a barrier rib pattern by pressing a first pattern forming member onto the barrier rib forming material, the barrier rib forming material being of a set thickness, and a bonding agent pattern forming process using a pattern forming member having the same pattern as the pattern forming member used in the barrier rib pattern forming process.

Please amend the paragraph beginning on page 12, line 4, as follows:

Here, the barrier rib tops and the bonding agent arranged on the barrier tops are aligned

by forming the pattern for the barrier ribs and the bonding agent simultaneously are brought into contact by using a pattern forming member with the same pattern to form the pattern for the barrier ribs and the bonding agent. This method is used rather than a screen plate with an aperture pattern like that used in screen-printing. As a result, the bonding agent can be applied evenly along the narrow barrier rib tops using a simple technique, even if the barrier rib tops are not strictly linear, and form wavy lines. This produces a display panel with greater bonding strength.

Please delete the paragraph beginning on page 12, line 13.

Please delete the paragraph beginning on page 12, line 23.

Please amend the paragraph beginning on page 13, line 17 as follows:

Also, in order to achieve the above first object, a display panel manufacturing method, for connecting a pair of substrates arranged in opposition via a bonding agent arranged on a plurality of barrier ribs formed in a specific pattern on at least one of the substrates is provided. The display panel manufacturing method includes an indentation forming process for forming at least one indentation in a center of each barrier rib top, when viewed widthwise on a top of each barrier rib; and a bonding agent arranging process for arranging the bonding agent in the indentations.

Please amend the paragraph beginning on page 13, line 26, as follows:

The barrier rib tops and the bonding agent arranged on the barrier rib tops are here aligned by indentations formed in advance in the central area of the barrier rib tops. This method

is used rather than a screen plate with an aperture pattern like that used in screen-printing. As a result, the bonding agent can be applied evenly along the narrow barrier rib tops using a simple technique, even if the barrier rib tops are not strictly linear, and form wavy lines.

Please amend the paragraph beginning on page 15, line 8, has been amended as follows:

In order to achieve the first object, a display panel manufacturing method, for connecting a pair of substrates arranged in opposition via a bonding agent arranged on a plurality of barrier ribs formed in a specific pattern on at least one of the substrates is provided. A process for arranging the bonding agent on the barrier ribs includes an attaching process for attaching a bonding agent positioning member to the barrier ribs; a first removing process for removing parts of the bonding agent positioning member attached to the barrier rib tops at positions corresponding to the specific pattern, to form a groove along each barrier rib top; a bonding agent filling process for filling the grooves with the bonding agent, while maintaining the relative positions of the grooves and the barrier rib tops; and a second removing process for removing the remaining bonding agent positioning member ~~removing process for forming holes in the first member at positions corresponding to tops of the barrier ribs; a bonding agent filling process for filling the holes in the first member with the bonding agent; and a second removing process for removing the remaining first member~~.

Please amend the paragraph beginning on page 15, line 20, as follows:

Here the barrier rib tops and the bonding agent arranged on the barrier rib tops are aligned based on a pattern formed so that it conforms to the barrier rib pattern. This method is used rather than a screen plate with an aperture pattern like that used in conventional screen-

printing techniques. As a result, the bonding agent can be applied evenly along the narrow barrier rib tops using a simple technique, even if the barrier rib tops are not strictly linear, and form wavy lines. This enables a display panel with greater bonding strength to be obtained. Further more, the bonding agent is prevented from flowing off the barrier rib tops by the bonding agent positioning first member, until the bonding agent positioning first member is removed.

Please amend the paragraph beginning on page 16, line 6, as follows:

The adhesion process is performed by applying the bonding agent positioning first member to the barrier ribs after a connecting layer is formed on either the barrier ribs or the bonding agent positioning first member.

Please amend the paragraph beginning on page 16, line 9, as follows:

The first removing process removes parts of the bonding agent positioning member attached to the barrier rib tops by irradiating the surface of the bonding agent positioning forms holes by irradiating the surface of the first member with a laser.

Please delete the paragraph beginning on page 16, line 11.

Please delete the paragraph beginning on page 16, line 18.

Please amend the paragraph beginning on page 17, line 6, as follows:

The above first object may also be achieved by a display panel manufacturing method, for connecting a pair of substrates arranged in opposition via a bonding agent applied to a plurality of barrier ribs formed on at least one of the substrates. A process for arranging the

bonding agent on the barrier ribs includes an arranging process for bringing a an already formed bond sheet ~~made by forming a sheet of bonding agent in advance~~, into contact with tops of the barrier ribs; a transfer process for transferring the bonding agent to the parts of the barrier rib in contact with the bond sheet by pressing the bond sheet onto the barrier rib tops and a removing process for separating the bond sheet from the barrier ribs.

Please delete the paragraph beginning on page 18, line 3.

Please amend the paragraph beginning on page 18, line 11, as follows:

The above first object may also be achieved by a display panel manufacturing method, for connecting a pair of substrates arranged in opposition via a plurality of barrier ribs formed on at least one of the substrates, and a bonding agent applied to the barrier ribs. The display panel manufacturing method includes an applying process for applying the bonding agent to an area on each barrier rib that is at least as large as a top of each barrier rib; a hardening process for selectively hardening parts of the attached bonding agent positioned in a central area of the barrier rib tops, when viewed widthwise and a removing process for removing the parts of the bonding agent that have not been hardened.

Please amend the paragraph beginning on page 18, line 21, as follows:

Here, the application area for the bonding agent is not established from the outset as in screen-printing. Instead, the bonding agent is arranged on the barrier rib tops, covering an area than is wider than the barrier rib tops. Parts Central parts of the arranged bonding agent are then hardened and the parts that still remain soft are selectively removed, leaving the bonding agent

arranged appropriately along the barrier rib tops. As a result, the bonding agent can be applied evenly along the narrow barrier rib tops using a simple technique, enabling a display panel with greater bonding strength to be obtained. If the accuracy with which parts of the bonding agent are hardened can be improved, the bonding agent can be applied evenly along the, narrow barrier rib tops using a simple technique, even if the barrier rib tops are not strictly linear, and form wavy lines. This enables a display panel with even greater bonding strength to be obtained.

Please amend the paragraph beginning on page 19, line 11, as follows:

In the applying process, a compound of bonding agent and photo-hardening resin is applied to the barrier rib tops; and in the hardening process, central parts of the applied compound are exposed to light, causing the exposed parts of the compound to harden.

Please amend the paragraph beginning on page 19, line 23, as follows:

The bonding agent is arranged on the barrier ribs using a compound including a ~~first~~ substance which is more difficult to melt than the bonding agent.

Please amend the paragraph beginning on page 19, line 26, as follows:

The ~~first~~ substance supports the load of the front substrate, preventing bonding agent melted when the substrates are sealed from being pressed down by the weight of the front substrate and seeping into the cell area. This stops the panel from being fired with bonding agent seepage inside the cell area.

Please amend the paragraph beginning on page 20, line 5, as follows:

Next, to achieve the above second object, the present invention also includes a gas discharge panel, including a first substrate, on which a plurality of pairs of electrodes extending in a first direction, and a dielectric layer covering the electrodes have been formed, and a second substrate, on which a plurality of barrier ribs, extending in a second direction differing from the first direction, are formed in opposition to the dielectric layer and the electrode pairs so that the barrier ribs are separated from the dielectric layer and the electrode pairs. Here the dielectric layer and the barrier ribs are at least partially connected via a bonding agent. The panel is structured such that discharge mainly occurs in parts of the panel separated from the positions where the barrier ribs and the dielectric layer are connected.

Please amend the paragraph beginning on page 22, line 14, as follows:

Gas should preferably be enclosed in the space between the 15 first and second substrates of the gas discharge panel at a pressure of not less than 760 Torr (1.01×10^5 Pa).

Please amend the paragraph beginning on page 31, line 7, as follows:

In the present embodiment, the pressure of the enclosed inert gas is set at a high level of at least 760 Torr (1.01×10^5 Pa), and at least as great as atmospheric pressure.

Please delete the paragraph beginning on page 62, line 10.

Please amend the paragraph beginning on page 68, line 9, as follows:

The inside of a PDP manufactured based on the above embodiments was pressurized by the introduction of air, and the bonding strength determined by the pressure value obtained at the time the panel exploded. The resulting value was found to be 6100 Torr (8.11×10^5 Pa).